Bank equity investments: reducing agency costs or buying undervalued firms? The information effects.

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Abstract

This paper analyses the relevance of two different reasons for banks to acquire firms' stock: the increase of agency costs in the lending relationship (the agency costs hypothesis), and participation in the expected profits of undervalued firms (the information asymmetry hypothesis). Results indicate not only that banks make equity investments for both reasons but also that the market exploits their lending decisions to learn which of the two motivations was in play. Bank equity investments concurrent with reductions in bank debt are consistent with the agency costs hypothesis, whereas bank equity investments concurrent with increases in bank debt are consistent with the information asymmetry hypothesis.

JEL Classification: G21, G24, G28.

Keywords: bank equity stakes, bank debt, agency costs, information asymmetries, event studies

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Abstract

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1. Introduction

One of the subjects arousing considerable interest and debate in financial system design is the degree of separation that should exist between banking and commerce. The two areas have been separated since the 1933 Glass Steagall Act in the USA, whereas banks can hold equity stakes in industrial firms in countries such as Germany, Japan or Spain.[i] However, ongoing controversy rages as regards the need for reform in both USA and other countries, since both costs and benefits have traditionally been recognized as spin-offs of the affiliation of banking and commerce. [ii]

One exception to the banking ban on company equity applies to firms in financial distress. In such cases even restrictive legislations such as those of the US and Britain have allowed banks to temporarily take equity in non-financial firms to alleviate financial distress and to avoid viable firms being liquidated (Gilson et al., 1990; James, 1995; Franks and Nyborg, 1996). The different attitudes underpinning national legislations on bank equity are thus best mirrored in how non-distressed firms are considered, and it is this kind of firm that will be focused upon in this paper.

The main benefits claimed of bank-commerce affiliation include reducing the conflicts of interests and information asymmetries between shareholders and debtholders. Firstly, when a bank holds both the equity and debt of a firm, under-investment and risk-shifting conflicts between shareholders and debtholders are lowered (Jensen, 1986; Prowse, 1990). Furthermore, by taking equity in a firm, a bank can access new information about the firm's quality and become an insider. This can help firms to obtain additional debt from the bank (Petersen and Rajan, 1994; Berger and Udell, 1995).

Theoretical models that apply the above arguments have focused on firms' improved investment efficiency brought about by the reduction of agency costs

and information asymmetries between the borrowing firm and the lending bank (John et al., 1994; Park, 2000). However, empirical evidence on the consequences of bank-commerce affiliation is scarce, given that in many countries bank equity stakes in non-distressed firms are not allowed. Moreover, studies from Japan, Germany and Spain fail to reach a consensus on the impact of bank equity holdings on the efficiency of non-financial firms. In this respect, Kim (1991), Hoshi et al. (1991) and Pushner (1995) find evidence consistent with it having a positive effect on firm efficiency in Japan, whereas Weinstein and Yafeh (1998) fail to uncover higher profits for firms that maintain stable relations with banks. Mork et al. (1999) find significant evidence of a convex relationship between bank equity participation and firm value, with a slightly negative relationship at low levels of equity investment becoming positive at higher levels.

Results obtained in Germany also jar. Whilst Cable (1985) points to there having been a significant positive relationship between bank shareholding and profitability of large industrial firms in 1970, Gorton and Schmidt (2000) obtained similar results from a 1974 sample, but not from a 1985 sample of firms. As for Spain, Zoido (1998) shows that shareholder-banks exercise their control rights over the decisions that firms make. Such control is reflected in a lower cost of financing new projects and in the way firms solve their problems of financial distress. However, Bergés and Sánchez del Villar (1991) do not describe a positive effect of bank equity stakes on the efficiency of Spanish firms.

Apart from the well-documented advantages of reducing agency costs and information asymmetries that are spin-offs of bank-owned firms, banks might also acquire firms' stock if they have private information that leads them to believe that a firm's shares are undervalued. When the lending bank has such inside information, it will have incentives to acquire a firm's stocks to obtain capital gains. Consistent with this argument, empirical evidence shows that corporate insiders engage in profitable transactions by trading securities of their own firms (Seyhun, 1990; Seyhun and Bradley, 1997; John and Lang, 1991) and that there is a positive relationship between insider transactions and future stock returns (Iqbal and Shetty, 2002). This paper analyses whether a bank that has long-term links with a commercial firm mimics firms' managers' behaviour by using inside information to trade firm stock strategically.

All empirical evidence pointing to a positive relation between company efficiency and bank shareholding emphasizes the reduction of agency problems between

the bank and the firm. However, no studies analyse whether banks are merely exploiting inside information to acquire undervalued company stock and obtain capital gains. Yet such reasoning would also be consistent with a positive relationship between bank shareholding and the future efficiency of a firm. One of the contributions of this paper is, hopefully, to establish clear lines distinguishing these two driving forces, analyzing the relative importance of each of them in explaining bank equity investment.

Such analysis can be carried out because firms' variables explaining bank acquisitions are different for each hypothesis: a) if banks hold equity in borrowing firms to reduce agency costs, any bank equity investment would be founded upon increased agency costs between shareholders and debtholders. Consistent with this hypothesis, Flath (1993) describes how the largest debtholders in *keiretsu* member companies hold more stock if the companies have high debt to equity ratios, weaker collateral or greater prospects of growth. All these factors are linked to agency debt problems that stockholding by a debtholder can help to resolve; b) If banks take equity in borrowing firms when their shares are undervalued, any bank equity investment would be based upon the bank being in possession of positive inside information about a firm's prospects. This hypothesis therefore forecasts that a bank's decision to acquire stock would be linked to expectations of greater firm profitability and/or lower firm risk. The results of this paper are consistent with both motivations for banks to acquire stock in non-financial firms.

A second contribution of this paper is to show that a bank's decision whether to increase or decrease bank debt around equity acquisition is exploited by the market to learn which of the two potential motivations lies behind a bank's equity stake. Whereas equity investments concurrent with reductions in bank debt are interpreted by the market as indicative of greater agency costs, bank equity investment concurrent with increases in bank debt are seen by the market as indicating that the bank has positive information about the prospects of the firm. Consistent with this explanation, this paper shows that firms' abnormal stock returns around announcements of bank equity investments are different depending on the bank's debt decision. Empirical analysis is carried out on the Spanish market, since two hallmarks of this market are that it allows both long-term bank-firm lending relationships and bank equity investments.

The rest of the paper is structured as follows: the hypotheses and database are presented in Sections 2 and 3 respectively. Section 4 analyses the firm variables that explain bank lending to the company around the equity investment, and considers how the market exploits bank lending decisions to interpret bank equity investment. Section 5 presents firms' abnormal stock returns around announcements of bank equity investments. Finally, conclusions are presented.

2. Hypotheses

The main hypothesis tested in this paper is that equity investments made by banks in non-financial firms do not provide the market with unequivocal information about the characteristics of the firms, as two distinct circumstances will both spark a bank's incentives to acquire equity in firms it lends to. On the one hand, stock acquisition can be a mechanism to lower agency costs of the lending relationship (*Agency costs hypothesis*). New acquisitions of a firm's stock by a bank will thus be a response to increases in agency costs, which modify the optimal bank equity stake in the firm. According to this tenet, any decrease in profitability and/or increase in risk or in the percentage of the firm's intangible assets would increase the agency costs between the bank and the firm, and would justify an acquisition of the firm's stock by the bank (Flath, 1993).

On the other hand, if a lending bank is an informed agent about the quality of a firm, it will also have incentives to acquire that firm's stock when it considers it undervalued by the market (*Information asymmetry hypothesis*). In this case, the bank' s expected increase in profitability and/or expected decreases in the firm's risk will also justify stock acquisition, because it will provide the bank with capital gains (Iqbal and Shetty, 2002).

Since the bank may take equity in the borrowing firm when prospects are either worse (lower profitability and/or greater risk under the agency costs hypothesis) or better (greater profitability and/or lower risk under the information asymmetry hypothesis), it would not be possible to forecast a clear firms' stock price reaction around announcements of bank equity investments if the market is unable to distinguish which of the two contrasting reasons are motivating the bank equity investment. However, this paper argues that the market can in fact

distinguish the predominant motivation if it analyses the bank's lending decision around the stock acquisition in the firm.

If the origin of a bank's equity investment is an increase in agency costs, it will have incentives to reduce its debt in the firm in response to such costs. Such a reaction when firms go bankrupt is well documented in the literature. The high agency costs which come to light when firms announce that they are insolvent typically give rise to an agreement whereby debtholders and shareholders exchange debt for equity, i.e. banks increase their equity investment and reduce their debt investment in the firm (Gilson et al., 1990; James, 1995; Frank and Nyborg, 1996). Similarly to the debt-equity exchanges in financially distressed firms, we forecast that in countries where bank equity investments are allowed, banks will acquire stock and lower their debt in non-distressed firms if they expect deterioration in the profitability and/or an increase in the firm's risk. This financial exchange will serve to reduce agency costs between shareholders and creditors. Furthermore, if the market anticipates the bank's behaviour, announcements of stock acquisition by the bank, accompanied by a decrease in bank debt would convey negative information to the market about the firm's profitability and/or risk. The agency costs hypothesis would therefore predict abnormal negative stock returns of firms around announcements of new bank equity investments that are preceded by reductions of bank debt in the firm. [iii]

The corollary is also true. If bank equity investment is triggered by a bank having positive inside information about the firm's prospects, the information asymmetry hypothesis would predict that the bank would not only acquire equity in the firm with the goal of obtaining capital gain, but would also be stimulated to increase the firm's debt, as there is an increased likelihood that it will be paid back. The bank will thus only acquire stock and increase its debt in the firm when it expects an increase in the profitability and/or a decrease in the firm's risk. Furthermore, if the market anticipates this behaviour, it will react positively to bank equity investment announcements preceded by a bank debt increase.

By carrying out joint analysis of bank stock acquisition and its lending decision, the market should thus be able to perceive whether agency costs or information asymmetry is the driving force of a bank's equity investment.

3. The Database

The degree to which information asymmetry and agency costs hypotheses drive bank equity investments is analysed for Madrid Stock Exchange-listed firms over the 1992-1998 period. The Spanish financial system, like those of Germany and Japan, is a bank-oriented system where banks maintain close ties with industrial firms not only by lending them funds but also by taking equity in them. Throughout the 1992-1998 period, banks were allowed to acquire equity under Spanish law in commercial and industrial firms, with no restraints other than those laid down by the risk-adjusted bank capital ratio. Under this bank capital regulation, the higher the bank equity stakes are, the higher the cost of bank capital is, as the percentage of equity to total assets must be higher.

The percentage of Madrid Stock Exchange-listed firms that had a bank as a shareholder, the average bank shareholding in non-financial firms and the number of banks amongst the firms' owners are reported in Table 1. For the 1992-1998 period, 58.46% of non- financial firms had at least one bank amongst its shareholders, with average bank shareholding standing at 20.58%. Shareholding by a single bank predominated, as this was the position of 82.57% of firms; this contrasts with 15.09% and 2.34% respectively of firms where two and three banks figured amongst the shareholders. No firms were owned by more than three banks.

{Insert Table 1}

Announcements of bank equity investments in non-financial firms listed on the Madrid Stock Exchange were identified from the Spanish financial press registered in the Baratz database for the years 1992-1998. In order to eliminate announcements contaminated with confounding effects, bank acquisitions had to satisfy a number of criteria to be included in the final sample. Thus, any acquisitions or increases in banks equity ownership of borrowing firms which were accompanied by announcements of equity issues, payment of dividends, takeovers, divestitures and debt offerings within ten days before or after the bank equity stake announcements were excluded, as were any inter-bank stock purchases that failed to modify total bank ownership in the industrial firm. All bank equity investments made to resolve financial distress were similarly

eliminated, leaving only financially sound borrowing firms in the sample. As a result, the initial sample of 92 bank equity acquisition announcements was whittled down to 56 for the 1992-1998 period. This group of 56 firms is referred to as "firms with bank equity stakes".

In order to know firms' determinants of bank equity investments, a control sample made up of firms in which banks had not acquired equity had to be defined. Each of the 56 bank acquisitions in the sample was paired with a similarly-sized firm from the same sector of industry which no bank had held equity in over the 1992-1998 period. Size was measured as the market value of common equity at the end of the previous year in which the bank took the equity, and firm activity was matched according to the Madrid Stock Exchange's industrial classification. This group of firms is referred to as "the control group".

4. Bank debt changes around bank equity investments

As agency costs and information asymmetry hypotheses propose different firm variables to explain bank equity investment, in this section we analyse firm's determinants of bank equity acquisitions. We also test whether bank lending around bank equity investments is positively related to ensuing firm's profitability and negatively related to ensuing firm's risk. In such a case, the market could use bank lending to discriminate between the two potential reasons of the bank equity investment.

(i) *Empirical method*

We apply a two-stage procedure. The first stage estimates a probit model which analyses the determinants of why banks take - or do not take - equity stakes in the 112-firm sample. In the second stage we apply an OLS estimation to analyze the determinants of changes in bank debt for the group of 56 firms in which banks have taken equity. This two-stage analysis follows the Heckman (1979) procedure, since we are analysing the change in bank lending in the censored sample of firms in which banks have taken equity. The Heckman procedure consists of incorporating the inverse Mills ratio obtained from the probit of the first stage into the OLS of the second stage as a further explanatory variable.[iv]

The remaining independent variables of the second stage must be the same as the first stage to obtain unbiased coefficients.

In order to model change in bank debt in the second stage in firms in which banks have acquired equity, we shall hypothesize that this change comprises of two components: one is a discretionary adjustment, the other is a change wrought by factors that are exogenous to the bank and the firm:

$$\Delta BANKDEBT_{j,t} = \Delta^{d} BANKDEBT_{j},t + E_{j,t} \qquad [1]$$

where $\Delta BANKDEBT_{j,t}$ is the observed change in bank debt level for firm j in period t.

The discretionary adjustment in bank debt, $\Delta^{d} BANKDEBT_{j,t}$, is modelled using the partial adjustment framework, thereby recognizing that banks and firms may not be able to adjust their target bank debt ratio instantaneously. [v] In this framework, the discretionary adjustment in bank debt ratio is proportional to the difference between the target level and the level existing at period t-1:

$$\Delta^{d} BANKDEBT_{j,t} = \alpha\left(BANKDEBT^{*}_{j,t} - BANKDEBT_{j,t-1}\right) \qquad [2]$$

where $BANKDEBT^{*}_{j,t}$ is the target bank debt ratio in the firm.

Substituting eq. (2) into eq. (1), the observed changes in bank debt ratio of the firm can be written:

$$\Delta\ BANKDEBT_{j,t} = \alpha\left(BANKDEBT^{*}_{j,t} - BANKDEBT_{j,t-1}\right) + E_{j,t} \qquad [3]$$

Thus, changes observed in bank debt ratios in the firm are a function of the target bank debt ratio, the lagged bank debt ratio, and any exogenous factors. As the analysis is being applied to the censored sample of firms in which banks have taken equity, the inverse Mills ratio must also be included. Moreover, if the same explanatory variables are to be used in both stages of the analysis, then variables that explain both the target bank debt ratio in the firm and the bank's decision to

acquire equity in the firm must be defined. We follow Flath (1993) – who analyses firms' variables that explain shareholding by the main bank in keiretsu member companies in Japan - and Kroszner and Strahan (2001) – who identify firms' characteristics related to the benefits and costs of active bank monitoring to explain the distribution of commercial bankers across corporate boards – in order to define firms' variables related to the likelihood of banks taking equity. These variables are risk, profitability, tangible assets, size and the borrowing firm's age. As these variables have also been suggested by Bathala et al. (1994), Jensen et al. (1992), Myers (1977), Rajan and Zingales (1995) and Smith and Watts (1992) as determinants of the debt-taking decision, they are also included as explanatory variables in the second stage.

The specification of the Heckman two-stage analysis is therefore:

First Stage (to estimate the probability of a bank taking equity in the firm):

$$PROB(EI)_j = f(\text{risk, profitability, tangible assets, size, age}) - \alpha\, BANKDEBT_{j,t-1} + \varepsilon_j \qquad [4]$$

Second Stage (to estimate the differences in the bank lending decision across bank-owned firms):

$$\Delta BANKDEBT_j = f(\text{risk, profitability, tangible assets, size, age}) - \beta_1\, BANKDEBT_{j,t-1} + \beta_2 \lambda_j + \omega_j \qquad [5]$$

where λ_j is the inverse Mills ratio obtained for each observation from the probit model and ε_j and ω_j are the respective disturbance terms.

There now follows a description of how each of the explanatory variables was measured, of the sign forecasted by each hypothesis for the variable coefficients, and of how these variables can be used to distinguish between the agency costs and the information asymmetry hypotheses.

a) Risk

The agency costs hypothesis forecasts a positive relationship between a firm's volatility expected by the bank and the likelihood of the bank acquiring equity in the borrowing firm. This positive relationship emerges because the benefits of bank equity holdings in reducing agency cost is greater, the greater the firm's volatility (Flath, 1993; John et al., 1994; Kroszner and Strahan, 2001). However, the forecast would be the opposite if a bank were to take a firm's equity in order to participate in the expected surplus of undervalued firms. In this case, a negative relationship would emerge, as the capital gains expected by the bank when it purchased firm equity would drop in line with the firm's expected risk (Iqbal and Shetty, 2002).

We adopt a rational expectations model and follow Kroszner and Strahan (2001) in measuring the volatility expected by the bank as the standard deviation of the daily equity return in the year following the bank equity investment, E(RISK). Since agency costs and the information asymmetry hypotheses predict opposing signs and the predominance of each of them can vary with the level of volatility, the square of the standard deviation is also included in the equation, E(RISK2).

To test the hypothesis that changes in bank debt ratio in the firm can serve to discriminate between the two potential motivations for bank equity stakes, E(RISK) and E(RISK2) are also included as explanatory variables in the second stage. A reduction in bank debt in the firm will be correctly associated by the market to an increase in agency costs if the firm actually increases its risk in following years. Similarly, an increase in bank debt will be correctly associated by the market to better firms' prospects if the firm actually reduces its risk in following years. For these reasons, the bank debt decision will inform the market of the reason behind its bank equity acquisition if there is a negative relationship between E(RISK) or E(RISK2) and ΔBANKDEBT.

b) Profitability

The higher the profitability, the lower the probability that the firm will suffer financial distress, leading to less shareholder-creditor conflict. Thus, if the bank

equity holding in the borrowing firm is made so as to reduce such conflict, banks would be expected to acquire equity in firms with lower profitability. The agency costs hypothesis would therefore predict a negative relationship between the likelihood of the bank taking equity in the borrowing firm and the firm's profitability expected by the bank (Flath, 1993; John et al., 1994; Kroszner and Strahan, 2001).

On the other hand, the information asymmetry hypothesis would forecast an opposing positive relationship because the higher the firm's return expected by the insider bank, the higher the capital gains the bank can obtain by buying the firm's shares (Iqbal and Shetty, 2002).

Kroszner and Strahan (2001) are followed and a rational expectations model is also applied to measure the firms' returns expected by the bank. Return is measured as a firm's mean stock return in the year following the bank equity investment, E(RETURN). Since the two hypotheses predict opposing signs and the predominance of each of them can vary according to the level of return, the squared return is also included in the regression, E(RETURN2). [vi]

The hypothesis that change in bank debt ratio can discriminate between the two potential drivers of bank equity stake forecasts a positive relationship between a change in bank debt ratio and a firm's future profitability. Any increase in the bank debt of firms with enhanced profitability in the following year would be consistent with the information asymmetry hypothesis; a decrease of bank debt in companies that reduce their one-year-on profitability would be consistent with the agency costs hypothesis. If this is indeed the case, signs of change in bank debt in a company around the bank equity investment would highlight the reason why a bank had acquired a stake in a company.

c) Tangible assets

More tangible, or collaterable, assets reduce agency costs between shareholders and creditors and leads to increased credit availability for firms (Myers, 1977). In consequence, the agency costs hypothesis forecasts that firms with a lower ratio of tangible assets have a greater probability of bank shareholding, as the benefits obtained by reducing conflicts of interests are greater (Flath, 1993). On the other

hand, the lower the intangible assets, the lower the value of the inside information of the informed bank, and the lower the probability of the bank exploiting its privileged information to acquire equity in the firm. Thus, both agency costs and information asymmetry hypotheses forecast a negative relation between the ratio of a firm's tangible assets and the likelihood of the bank purchasing that firm's stock. We include in the empirical analysis the ratio of tangible assets to total assets at the end of the acquisition year, with tangible assets including property, plant and equipment, (TANG).

As regards the second-stage equation, the literature generally forecasts a positive relationship between tangible assets and a firm's bank debt (Myers, 1977, Harris and Raviv, 1991; Jensen et al., 1992). This positive relationship is a consequence of lower agency costs and information asymmetries originated by the higher liquidation value of tangible assets. Thus, a positive coefficient is expected for TANG in the ΔBANKDEBT equations.

d) Size

As the literature predicts lower information asymmetries in larger firms (Harris and Raviv, 1991; Smith and Watts, 1992), the information asymmetry hypothesis would forecast a negative relationship between firm size and the probability of the lending bank taking equity in the firm. Larger firms will provide fewer opportunities for inside information to be exploited to obtain capital gains by trading firms' shares. In the empirical analysis, size (SIZE) is measured as the natural logarithm of the firm's total assets at the end of the year of acquisition.

As regards the second stage, Smith and Watts (1992) and Rajan and Zingales (1995) have both described a positive relationship between debt ratio and firm size. They argue that the cost of financial distress and information asymmetries limit leverage and that, therefore, the greater diversification and better knowledge by the market of larger firms enables them to have higher leverage than their smaller counterparts. For these reason, a positive relationship between firm size and firm' bank debt ratio is predicted in the second-stage equation.

e) Age

Older firms usually have lower information asymmetries (Petersen and Rajan, 1994; Degryse and Ongena, 2001). Thus, the older the firm, the lower the possibility of a lending bank using its inside information to obtain capital gains by trading in a firm's stocks. For this reason, we predict a negative relationship between the probability of a bank equity stake in the firm and the age of the firm. We measure age as the natural logarithm of a firm's age, LN(AGE).

Lower information asymmetries in older firms also explain the greater readiness of creditors to provide them with funds. This suggests a positive relationship between age and bank debt ratio in the firm.

(ii) Results

Table 2 compares the means and medians of firms' variables in both samples in which banks have and do not have an equity stake. Bank debt ratio is calculated as the percentage of bank debt to both total bank assets ($BANKDEBTA_{t-1}$) and to total bank debt ($BANKDEBTD_{t-1}$) at the end of the year prior to equity acquisition. Total bank debt is used as the numerator in both ratios rather than the firm's specific debt with the bank buying equity, as the latter information is not in the public domain. Companies quoted on the Madrid stock exchange publish lists of debtholding banks in their annual reports but do not publish the specific monies owed to each bank. In the light of such limitations, there are several reasons why total bank debt ratio may be considered to be a good proxy in our analysis. Firstly, we have checked that the bank acquiring stock was also a creditor of the company at the close of the year prior to acquiring equity in all the 56 announcements of banks taking equity that are included in the sample. This seems to point to there being some correlation between the specific debt owed to the bank acquiring stock and firms' total bank debt. Furthermore, employing the variation of total bank debt instead of specific debt owed to the equity-acquiring bank may prove to be a more sensitive yardstick for results if the equity-acquiring bank is assumed to be one of the better informed creditors and other banks are assumed to lack incentives to non-mimic it in their lending decisions to the firm. Finally, as information effects can only be attributed to publicly announced decisions, the market can only use variation in total bank

debt to distinguish between the two hypotheses if no information on changes in the specific volume of debt with the equity-acquiring bank is available.

Table 2 also shows that bank debt ratios ($BANKDEBTA_{t-1}$, $BANKDEBTD_{t-1}$) and changes in bank debt ratio in the year prior to the bank equity investment (ΔBANKDEBTA, ΔBANKDEBTD) are not statistically different between firms with and firms without bank equity stakes. Nor are there statistically significant differences in either the standard deviation of daily stock return (E(RISK)) or in the mean stock return (E(RETURN)) in the year following the bank equity investment. However, firms with bank equity stakes do have a lower percentage of tangible assets (TANG), and a lower age (AGE), which is consistent with the predictions of both the agency costs and the information asymmetry hypotheses. However, the larger size (SIZE) of firms with bank shareholdings is not consistent with the information asymmetry hypothesis.

{Insert Table 2}

However, in any analysis of mean differences there are many confounding effects, which we try to isolate with a multivariate analysis that applies the two-stage analysis proposed by Heckman (1979). Panel A of Table 3 shows results measuring bank debt ratio as the percentage of bank debt to the firm's total assets, whereas in panel B bank debt ratio is defined as the percentage of bank debt to the firm's total debt. The results in both panels are similar.

{Insert Table 3}

The coefficients of probit estimations in models (1) and (4) are consistent with both agency costs and information asymmetry hypotheses since firms' risk has a non-linear effect and firms' return has a positive coefficient. The negative sign of E(RISK) for low levels of risk and the positive coefficient of E(RETURN) are both consistent with the information asymmetry hypothesis, which forecasts that banks acquire the stock of undervalued firms or firms where they expect lower risk or greater profitability. On the other hand, the positive E(RISK2) coefficient suggests that banks are also more likely to acquire equity when they expect high levels of risk, suggesting that a further aim of bank equity investment may be to

reduce conflicts of interest between bank and shareholder when risk levels are high.

To control for potential correlation between E(RETURN) and E(RISK) when both are based on market values, we exclude each of them alternatively in models (2)/(5) and (3)/(6). Also consistent with the existence of both motivations for bank equity acquisitions, we observe a non-linear effect of both profitability and of the firm risk on the probability of bank equity acquisition. Results thus indicate that the information asymmetry hypothesis predominates for low levels of expected risk or profitability, and that the probability of a bank equity investment is greater, the lower a firm's risk and/or the higher its profitability. The corollary also stands; the agency costs hypothesis predominates for high expected levels of risk or profitability, and the probability of a bank equity investment is greater, the higher a firm's risk and the lower its profitability.

Consistent with both lower agency costs and lower information asymmetries in firms with a higher percentage of tangible assets, TANG presents statistically significant negative coefficients in five of the six specifications explaining the probability of a bank acquiring shares in a company. Consistent with the information asymmetry hypothesis and with the fact that older firms are better known, LN(AGE) has a statistically significant negative coefficient in four of the six specifications. SIZE does not have statistically significant coefficients in four of the six probit estimations, and only in model (2) has it a statistically significant positive coefficient that cannot be explained by the information asymmetry hypothesis.

In contrast, the second-stage OLS estimations of each of the six models show the variables that explain change in bank debt in firms in which banks have taken equity. The results show that bank debt change in a firm is negatively related to a firm's risk in the year following the bank equity investment. The statistically significant negative coefficients of E(RISK) in the ΔBANKDEBTA or ΔBANKDEBTD equations are consistent with the fact that banks reduce their debt in firms in which they expect higher levels of risk, whereas banks provide new debt to firms in which they expect lower levels of risk. This behaviour will enable the market to exploit the sign change in bank debt to differentiate between the two possible driving forces of bank equity investment. If bank purchase of shares is accompanied by an increase in bank debt the market will infer negative information about a firm's future risk, as the acquisition will be seen as an indicator of higher agency costs. On the other hand, if the purchase is

accompanied by a reduction in bank debt, the market will infer positive information about the firm's future risk, viewing the acquisition as a positive indicator of the quality of the firm. Although the information effect of announcements of increases and decreases of bank lending could be consistent with a positive relation between a change in bank debt and a firm's profitability, this relation is not in fact observed, as E(RETURN) and E(RETURN2) do not have statistically significant coefficients in the ΔBANKDEBTA or ΔBANKDEBTD equations.

These results suggest that lending and equity bank decisions may basically convey information about a firm's future stock risk but not about its future stock return. As forecasted, bank debt ratio at the beginning of the year prior to bank equity investment, $BANKDEBTA_{t-1}$ or $BANKDEBTD_{t-1}$, has statistically significant negative coefficients in all the estimations, and older firms have greater bank debt ratio increases. However, larger firms and firms with a higher percentage of tangible assets are not seen to increase their bank debt ratios.

5. Abnormal stock returns around announcements of bank equity investments

The following section analyses whether firms' stock price responses around announcements of bank share acquisitions differ depending on whether bank equity investment is preceded by increases or reductions in bank debt, and whether this different reaction is consistent with the information effects described in the previous section. In other words, if the market infers an increase in agency costs when the bank announces a new equity investment after decreasing its debt in the firm, these announcements should elicit a negative stock price response. In contrast, if the market infers a decrease in a firm's risk expected by the bank when the bank announces a new equity investment after increasing its debt in the firm, these announcements should elicit a positive stock price response.

(i) Empirical method

The abnormal stock returns ($AR_{i,t}$) around the 56 announcements of bank equity investments are estimated using the standard event study methodology with

daily returns. An estimation period ranging from (-140, -21) before the date of the announcement is used to estimate parameters of the market model. Using ordinary least squares estimates of the market model parameters a_i and b_i, the abnormal return of the common stock of firm i on event date t is computed as:

$$AR_{i,t} = R_{i,t} - (a_i + b_i R_{M,t}) \quad [6]$$

Where $R_{i,t}$ is the daily rate of return for firm i at time t, $R_{M,t}$ is the daily rate of return of the Madrid Stock Exchange market index at time t.

For each firm i, announcement effects are estimated by cumulating the abnormal returns over the two-day interval (-1,0) as

$$AR_i = \sum_{t=-1}^{0} AR_{i,t} \quad [7]$$

For a sample of N firms, the average announcement effect is therefore equal to:

$$AR = \left(1/N\right) \sum_{t=-1}^{N} AR_i \quad [8]$$

The significance of abnormal stock returns was estimated using a parametric test (Brown and Warner, 1985) as well as a non-parametric test (Corrado, 1989). In the Brown and Warner test, firm's individual abnormal returns are standardized as:

$$SAR_{i,t} = AR_{i,t} \Big/ \sqrt{Var(AR_{i,t})} \quad [9]$$

where

$$Var(AR_{i,t}) = s_i^2 \left[1 + \left(1/150\right) + \left\{ \left(R_{M,t} - R_M\right)^2 \Big/ \sum_{t-169}^{-20} \left(R_{M,t} - R_M\right)^2 \right\} \right] \quad [10]$$

in [10] s_i^2 is the residual variance from the estimation of (6) over the period (-140,-21); R_M is the mean return on the market index over the estimation period, and $R_{M,t}$ is the return on the market on day t in the estimation period.

To test the significance of the average announcement effect, we compute

$$Z_t = \sqrt{N}\,(\mathrm{SAR_t}) \qquad [11]$$

where

$$SAR_t = (1/N)\sum_{t=-1}^{N} SAR_{i,t} \qquad [12]$$

Under the null hypothesis that the average announcement effect is zero, Z is approximately unit normally distributed.

In the Corrado (1989) test, each stock's time series of market model abnormal returns is first transformed into its respective rank. Let K_{it} denote the rank of the abnormal return $AR_{i,t}$ in security i's time series of 160 abnormal returns:

$$K_{i,t} = rank(AR_{i,t}) \qquad t = -140.....,+20 \qquad [13]$$

where $AR_{i,t} \geq AR_{ij}$ implies $K_{i,t} \geq K_{ij}$ and $160 \geq K_{i,t} \geq 1$. By construction, the average range rank is 80.5. The Corrado statistic substitutes $(K_{i,t}\text{-}80.5)$ for the abnormal return $AR_{i,t}$, yielding for the day 0 the test statistic:

$$T_{CORRADO} = \frac{1}{N}\sum_{i=1}^{N}(K_{i0} - 80.5) \Big/ S(K) \qquad [14]$$

the standard deviation S(K) is calculated using the entire 160-day sample period

$$S(K) = \sqrt{\frac{1}{160}\sum_{t=-140}^{+20}\left[\sum_{i=1}^{N}(K_{i,t} - 80.5)\right]^2} \qquad [15]$$

The above ranking procedure transforms the distribution of abnormal security returns into a uniform distribution asymmetry in the original distribution and is more suitable than the Brown and Warner test for small samples of abnormal returns. This procedure also precludes the misspecification of the non-parametric signed rank and sign test documented by Brown and Warner (1985).

(ii) Results

The abnormal returns of firms' stocks around the 56 announcements of bank equity acquisitions are shown in Table 4. The results for the total sample of bank equity investment announcements do not show statistically significant abnormal stock returns. Consistent with our predictions, this result changes drastically when the sample is divided according to the criterion of whether banks increase or decrease their debt in the firm in the year prior to the equity investment. Bank debt ratio change is measured by comparing bank debt ratio on the date when the bank takes equity with the bank debt ratio one year before. Bank debt ratio increased in the case of thirty-one firms and dropped in twenty-five.[vii] Negative, statistically significant abnormal returns around announcements of bank equity investments when the bank decreased its debt in the firm in the prior year are observed. However, announcements of bank equity acquisitions preceded by increases in bank debt elicit positive stock price reactions of borrowing firms, which are statistically significant on the day before the announcement according to the Brown and Warner (1985) test. These positive reactions are statistically less significant than the negative ones obtained when the bank decreased its debt in the firm and are not statistically significant according to Corrado's test (1989).

{Insert Table 4}

The cumulative abnormal returns for the total sample and for each of the sub-samples during the (-20,20) period are shown in Figure 1. The different stock price reactions, depending on whether the announcement of bank equity investment is preceded by an increase or decrease of the bank debt ratio, is consistent with the hypothesis that the market uses the lending bank's decision to discriminate between agency costs and information asymmetry motivations for

purchasing. Bank equity investments preceded by an increase in bank debt in the firm elicit a positive stock price reaction that is consistent with the fall observed in firm risk in the year following bank equity investment. However, if bank equity investment has been preceded by a reduction in bank debt in the firm, the market infers negative information about the firm, seeing the equity investment as being based on increased agency costs. In this case the announcement of bank equity investment elicits a negative stock price response that is consistent with the increased risk observed in such firms for the following year.

{Insert Figure 1}

Abnormal stock returns are analysed in greater detail through regression analysis. The dependent variable in the results presented in Table 5 is the cumulative abnormal return over the (-1,0) period for the total sample of 56 announcements. Results are qualitatively identical whether the cumulative abnormal return in the period (-1, 1) or on the day prior to the announcement of the bank equity acquisition (t=-1) is used as the dependent variable. Changes in bank debt ratio and other control variables such as the ratio of tangible assets (TANG) and the percentage equity investment made by the bank in the firm's capital (VOLUME) are factored in as independent variables.

If the market uses a firm's change in bank debt ratio to distinguish the motivation for the bank equity stake in the firm, a firm's abnormal stock returns should be positively related to the change in its bank debt ratio. On the other hand, the tangible asset ratio should be negatively related to the firm's abnormal stock returns, as inside information of the informed bank is less in firms with higher tangible ratios.

{Insert Table 5}

Consistent with our predictions, stock price reaction around announcements of bank equity investments is indeed positively related to the percentage variation of the volume of bank debt. This result also stands when control variables (TANG and VOLUME), whose coefficients are not statistically significant, are incorporated into the regression. The statistically significant positive coefficient

of change in a firm's debt ratio confirms that the market does not interpret bank equity investment as being unrelated to the lending decision. Quite the opposite is in fact the case; a bank's lending decision seems to be used by the market to distinguish between its motives for acquiring equity. Firms' stock prices therefore react differently around announcements of bank equity investments, depending on whether acquisitions are preceded by increases or reductions in bank debt.

6. Conclusions

This paper uses data from the Spanish market to test the agency costs and information asymmetry hypotheses as explanations of why banks hold equity in borrowing firms. The results for the Spanish market highlight that both hypotheses are at work; bank investment in borrowing firms is driven by two different factors: the wish to reduce agency costs in the lending relationship and the aim to buy undervalued firms, obtaining capital gains by exploiting inside information.

This paper also suggests that the market uses bank lending to discriminate between the two above-mentioned driving forces. As banks have incentives to replace equity for debt if agency costs with shareholders increase, the market will view bank equity investments concurrent with reductions in bank debt as being triggered by an increase in these costs. Similarly, as banks only have incentives to lend additional debt to firms if they have positive information about their future prospects, the market will infer that bank equity investments concurrent with increases in bank debt are sparked off by the bank having inside information on a firm's prospects.

The evolution of firm risk over the following year and abnormal stock returns around announcements of bank equity investments are consistent with the claim that bank lending decisions serve to indicate the reason behind such investment. Thus, bank equity investment preceded by bank debt reductions is followed by risk increases in the year following equity investment and bank equity investments preceded by enhanced bank debt are followed by risk reductions in the year following acquisition.

Abnormal stock returns around announcements of bank equity investments are also consistent with market exploitation of the bank lending to discriminate between the two potential motivations for banks to acquire equity. Announcements of bank equity investments preceded by bank debt reductions elicit abnormal negative stock returns whereas they elicit abnormal positive ones if are preceded by bank debt increases.

Notes

[i] A historical perspective on changes in the US system is given in Berger *et al.* (1995). Recently, the Gramm-Leach-Bliley Financial Services Modernization Act of 1999 has loosened restrictions on bank ownership of equity in non-financial firms, although the law carefully maintains the separation of banking and commerce by limiting the time that banks may hold such equity stakes and the amount of such holding relative to the bank's capital. Barth et al. (2004) provide data on the restrictions on the ability of banks to own and control nonfinancial firms in 101 countries.

[ii] See Saunders (1994) for a more detailed review of the benefits and costs traditionally associated to the affiliation between banking and commerce.

[iii] For empirical purposes, we adopt a sequential structure for the two signals (first, the market observes bank debt decision, then bank equity investment) rather than a simultaneous one. John and Lang (1991) also adopt a sequential structure to analyze the stock price response to dividend announcements depending on prior insider trading. They show that the dividend initiation announcement does not always have a positive information effect, as the stock price response depends on whether the insiders are buying or selling firm shares prior to the dividend announcement.

[iv] If we estimate a probit of the model: $Z_i = \gamma\, \omega_i + \mu_i$, the inverse Mills ratio is computed for each observation as $\lambda_i = \dfrac{\phi\left(\hat{\gamma}\, \omega_i\right)}{\Phi\left(\hat{\gamma}\, \omega_i\right)}$, where ϕ and Φ are, respectively, the density and distribution function for a standard normal variable. λ is a monotone decreasing function of the probability of an observation being selected into the censured sample of the second stage. When the inverse Mills ratio is included in the OLS regression on the censored sample consistent, efficient parameter estimates will be produced. It will also indicate the importance of selection bias in the sample of firms with bank equity stakes through its significance.

[v] This partial adjustment model was initially applied by Shrieves and Dahl (1992) to explain the changes in the capital and risk of banks. Regulations on the limits for the concentration of bank risks in a single borrower, capital requirements or the specific needs of funds in the firm can impede an instantaneous adjustment to the bank debt ratio in the firm.

[vi] We also included the firm's stock return and risk in the two and three years following the bank equity investment, with identical results to those presented in the paper.

[vii] The division of the abnormal returns simple is identical whether bank debt ratio is defined in relation to total assets bank (ΔBANKDEBTA) or as overall company debt (ΔBANKDEBTD). For this reason we do not differentiate between them when estimating bank debt ratio.

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Table 1

Bank ownership of nonfinancial firms

This table provides a descriptive analysis of the percentage of firms with bank shareholding, the volume of the bank equity stake and the number of banks with ownership of firms quoted on the Madrid Stock Exchange (MSE).

	1992	1993	1994	1995	1996	1997	1998
Percentage of non-financial firms with bank equity stakes at MSE	35.15	56.38	59.34	66.28	70.59	69.04	52.47
Mean bank capital participation at MSE	21.30	22.42	16.70	20.33	21.73	20.84	20.73
Percentage of firms owned by banks in term of the number of banks in their ownership:							
- with a single bank in the firms' ownership	84.72	88.29	84.96	81.82	76.56	76.8	84.88
- with two banks in the firms' ownership	15.28	9.91	13.27	14.88	20.31	19.2	12.79
- with three banks in the firms' ownership	0	1.80	1.77	3.30	3.13	4	2.33

Table 2
Characteristics of firms with bank equity stakes and control group firms

This table provides a descriptive analysis of the variables used in the empirical analysis for firms with bank equity stakes and firms without bank shareholding in their capital (control group). The firms in the control group were selected by pairing each bank-owned firm with the most similar in size belonging to the same industry without a bank shareholding in its ownership. BANKDEBTA $_{t-1}$ and BANKDEBTD $_{t-1}$ are, respectively, the percentage of bank debt to total assets and the percentage of bank debt to total debt of the firms at the end of the year prior to bank acquisition. ΔBANKDEBTA and ΔBANKDEBTD are, respectively, the change in these two bank debt ratios in the year prior to bank equity acquisition. E (RISK) is measured as the standard deviation of daily stock price returns in the year following bank equity investment. E ((RETURN), is the mean firm stock return in the year following bank equity investment. TANG is the percentage of tangible assets at the end of the acquisition year and includes property, plant and equipment. SIZE is the natural logarithm of total firm assets at the end of the acquisition year. LN (AGE) is the natural logarithm of firm age at the end of the acquisition year. *T*-statistics of the mean differences are in parentheses.

	Firms with bank equity stakes N=56		Firms without bank equity stakes (control group) N=56		
	Mean	Median	Mean	Median	Difference
	(1)		(2)		(1)-(2)
BANKDEBTA $_{t-1}$	0.125	0.112	0.135	0.121	-0.011 (-0.55)
BANKDEBTD $_{t-1}$	0.337	0.306	0.391	0.371	-0.060 (-1.23)
ΔBANKDEBTA	-0.015	0.00	-0.011	-0.003	-0.004 (-0.33)
ΔBANKDEBTD	-0.051	0.00	-0.047	-0.006	-0.004 (-0.10)
E(RISK)	0.195	0.025	0.169	0.059	0.026 (0.34)
E(RETURN)	0.170	0.177	0.104	0.050	0.066 (0.72)
TANG	0.445	0.487	0.617	0.633	-0.172** (-2.18)
SIZE	12.917	13.269	11.952	12.072	0.964*** (3.44)
LN(AGE)	3.343	3.637	3.789	3.829	-0.446*** (-2.66)

*** Significant at 1 % level ** Significant at 5 % level * Significant at 10% level

Table 3
Heckman estimations of bank debt changes

This table shows the results of Heckman estimations. In the first stage, we estimate a probit where the dependent variable takes 1 if a bank has taken equity in the firm and zero otherwise. In the second stage we estimate an OLS for the firms in which a bank has bought equity where the dependent variable (ΔBANKDEBT) is the change of bank debt ratio in the year prior to bank equity acquisition. Panel A shows results measuring bank debt ratio as the percentage of bank debt to total firm assets whereas in Panel B bank debt ratio is defined as the percentage of bank debt to total firm debt. E(RISK) is measured as the standard deviation of daily stock price returns in the year following bank equity investment, E(RISK2) is the square of E(RISK), the firm return expected by the insider bank, E (RETURN), is firms' mean stock return in the year following bank equity investment, E(RETURN2) is the square of E(RETURN). TANG is the percentage of tangible assets at the end of the acquisition year and includes property, plant and equipment. SIZE is the natural logarithm of total firm assets at the end of the acquisition year. LN (AGE) is the natural logarithm of firm age at the end of the acquisition year. $BANKDEBT_{t-1}$ is the ratio of bank debt (to total assets in Panel A and to total debt in Panel B) at the end of the year prior to bank equity acquisition. Finally, λ is the inverse Mills ratio. T-statistics are in parentheses below coefficient estimates.

	Panel A: bank debt to total firm's assets						Panel B: bank debt to total firm's debt					
	PROBIT	ΔBANKDEBTA	PROBIT	ΔBANKDEBTA	PROBIT	ΔBANKDEBTA	PROBIT	ΔBANKDEBTD	PROBIT	ΔBANKDEBTD	PROBIT	ΔBANKDEBTD
	(1)		(2)		(3)		(4)		(5)		(6)	
INTERCEP	4.120*	0.066	3.845*	0.061	-2.413*	-0.077	2.867	0.208	2.726	0.222	-2.366*	0.051
	(1.72)	(0.98)	(1.77)	(0.91)	(-1.86)	(-0.53)	(1.38)	(1.12)	(1.42)	(1.22)	(-1.90)	(0.14)
E(RISK)	-0.893***	-0.137*	-0.831***	-0.152**			-0.864***	-0.392*	-0.790***	-0.367*		
	(-5.23)	(-1.74)	(-5.60)	(-2.00)			(-5.07)	(-1.78)	(-5.59)	(-1.74)		
E(RISK2)	0.955***	0.066	0.878***	0.076			0.932***	0.203	0.839***	0.186		
	(4.17)	(1.25)	(4.36)	(1.47)			(4.04)	(1.37)	(4.30)	(1.31)		
E(RETURN)	1.749*	0.005			1.361*	-0.012	1.635*	-0.096			1.421**	0.024
	(1.69)	(0.13)			(1.89)	(-0.37)	(1.60)	(0.91)			(1.96)	(0.26)
E(RETURN2)	-0.594	0.076			-0.781*	0.092	-0.468	0.020			-0.802*	0.142
	(-1.02)	(0.93)			(-1.73)	(1.19)	(-0.83)	(0.087)			(-1.77)	(0.66)
TANG	-1.154	-0.063**	-1.310*	-0.061**	-1.338***	-0.064	-1.291*	-0.075	-1.506**	-0.045	-1.265**	-0.014
	(-1.47)	(-2.05)	(-1.75)	(-2.06)	(-2.59)	(-1.31)	(-1.62)	(-0.82)	(-1.99)	(-0.51)	(-2.42)	(-0.11)
SIZE	0.194	-0.006	0.219	-0.006	0.357***	0.004	0.203	-0.015	0.240	-0.016	0.356***	-0.006
	(1.13)	(-1.17)	(1.36)	(-1.10)	(3.32)	(0.33)	(1.22)	(-1.02)	(1.52)	(-1.16)	(3.43)	(-0.20)
LN(AGE)	-1.105*	0.020***	-1.004*	0.024***	-0.427**	0.011	-0.734	0.042**	-0.722	0.050**	-0.409**	0.031
	(-1.74)	(2.79)	(-1.83)	(3.32)	(-2.16)	(0.93)	(-1.46)	(2.07)	(-1.56)	(2.53)	(-2.21)	(1.03)
$BANKDEB_{t-1}$	3.161	-0.267***	2.981	-0.266***	-0.184	-0.286***	0.426	-0.490***	0.553	-0.495***	-0.478	-0.531***
	(1.35)	(-2.90)	(1.41)	(-2.88)	(-0.13)	(-2.81)	(0.40)	(-4.58)	(0.58)	(-4.58)	(-0.88)	(-4.72)
λ		-0.002		-0.015		0.053		0.0299		-0.032		0.069
		(-0.11)		(-0.86)		(0.99)		(0.45)		(-0.61)		(0.49)
Log of likelihood function	-26.241		-28.119		-60.668		-27.134		-28.994		-60.287	
Chi-squared	102.782***		99.027***		33.928***		101.00***		97.277***		34.690***	
F statistic		3.55***		4.48***		3.85***		4.78***		6.05***		5.33***
Adjusted R-square		29.46%		30.69%		26.69%		38.20%		39.11%		35.52%
# of observations	112	56	112	56	112	56	112	56	112	56	112	56

*** Significant at 1 % level ** Significant at 5 % level * Significant at 10% level

Table 4
Firms' stock abnormal returns around the announcements of bank equity investments

The table shows abnormal stock returns around announcements of bank equity investments. The market model is estimated over the period (-140, -21) around the announcement day. A parametric test (Brown and Warner, 1985) and a non-parametric test (Corrado, 1989) are used for measuring the statistical significance of abnormal stock returns.

	Event window	% AR	Brown-Warner test	Corrado test	% AR>0
Total N=56	-1	-0.0063%	-1.64	-1.47	41.1%
	(-1,0)	0.0868%	-1.16	-0.77	42.8%
Increase of bank debt N=31	-1	0.6280%	1.78*	0.71	54.8%
	(-1,0)	0.7574%	1.15	0.75	54.8%
Decrease of bank debt N=25	-1	-0.7929%	-4.44***	-2.85***	24%
	(-1,0)	-0.7448%	-3.02***	-1.89**	28%

*** Significant at 1 % level ** Significant at 5 % level * Significant at 10% level

Table 5
Regression analysis of firms' stock abnormal returns

The dependent variable is firms' cumulative abnormal stock returns of for two days (-1, 0) around the announcement of equity bank holdings. The change in bank debt is measured by comparing the bank debt of borrowing firms at the end of the following year in which the bank acquires equity with the bank debt at the end of the year prior to equity acquisition. In Panel A the bank debt ratio is estimated over to firm assets and in Panel B it is estimated over total firm debt. TANG is the ratio of fixed assets to total assets in the year of bank equity acquisition and VOLUME is the percentage of firm equity bought by the bank.

$$CAR_{-1,0} = \beta_0 + \beta_1 \Delta BANKDEBT + \beta_2 TANG + \beta_3 VOLUME + \varepsilon$$

	Panel A			
INTERCEPT	0.00117 (0.04)	0.00396 (0.76)	-0.00113 (-0.296)	0.00270 (0.47)
ΔBANKDEBTA	0.01143*** (2.69)	0.01107** (2.59)	0.01116** (2.60)	0.01083** (2.51)
TANG	_	-0.00857 (-0.92)	_	-0.00837 (-0.89)
VOLUME	_	_	0.00354 (0.564)	0.00033 (0.526)
Adjusted R^2	10.21%	9.94%	9.06%	8.70%
	Panel B			
INTERCEPT	-0.00745 (-1.59)	-0.00345 (-0.52)	-0.01029* (-1.93)	-0.0065 (0.90)
ΔBANKDEBTD	0.01502** (2.39)	0.01435** (2.26)	0.0157** (2.49)	0.01505** (2.36)
TANG	–	-0.00814 (-0.85)	–	-0.00751 (-0.79)
VOLUME	–	–	0.00689 (1.09)	0.00066 (1.04)
Adjusted R^2	7.88%	7.42%	8.22%	7.56%

*** Significant at 1 % level ** Significant at 5 % level * Significant at 10% level

Figure 1
Cumulative abnormal returns

This figure shows the firms' cumulative abnormal stock returns for announcements of bank equity holdings during the period (-20, 20). The total sample (n=56) is split into two sub-samples according to whether the banks increased their debt (n=31) or decreased their debt in the firm (n=25).